NOTES.

THE Bakerian Lecture will be delivered to-day before the Royal Society by Profs. Rücker, F.R.S., and Thorpe, F.R.S. The subject is the Magnetic Survey of the British Isles for the epoch January 1, 1886, on which these gentlemen have been engaged for five years. They have made observations at more than two hundred stations, and have thus completed the first survey of the United Kingdom in which all three elements—the declination, dip, and horizontal force—have been determined for all parts. In addition to the general survey by means of which the directions of the isogonals, isoclinals, and lines of equal horizontal force have been found, special surveys have been made of selected districts in order to investigate the magnitude, direction, and causes of local magnetic disturbance. The principles which are justified by these inquiries have been applied to the whole country, with results which are likely to prove of interest both to physicists and geologists. We hope to give an account of the lecture in an early number.

PROF. MENDELEEF, the celebrated Russian chemist, has accepted the invitation of the Council of the Chemical Society to deliver the Faraday Lecture ; he will probably give his mature views on the Periodic Law of the Elements, with which his name is so indissolubly connected. The lecture will be delivered by permission of the Managers of the Royal Institution in their theatre, on the evening of June 4. The Fellows of the Society will entertain Prof. Mendeleef at a dinner at the Holborn Restaurant the next evening ; and the President, Dr. W. J. Russell, F.R.S., will hold a reception at the Grosvenor Gallery on June 7.

M. CHEVREUL, the famous French chemist, died on the morning of April 9 at the age of 102. He was born at Angers in 1786. During his long life he held many official appointments, and by his work as a chemist he secured an eminent place among the men of science of the present century. He constantly kept in view the possible applications of science to industry. Some of his discoveries have exercised an important influence on the manufacture of silk, and his researches relating to "fatty bodies of animal origin" marked an era in the development of various industries dependent on organic chemistry. M. Chevreul was a man of active and cheerful temperament, and extreme old age did not prevent him from continuing the studies in which he had found a perennial source of interest.

THE death is announced of the Finnish botanist, Prof. Sextus Otto Lindberg ; and of Dr. Hermann Theodor Geyler, Director of the Botanical Gardens at Frankfurt. Dr. Geyler was born at Schwarzbach, in Saxe-Weimar, on January 15, 1835.

IN the House of Commons, on Tuesday, in connection with the vote for expenses incurred in the erection and maintenance of the buildings of the Department of Science and Art, Mr. Acland called attention to the inadequacy of the buildings used by the Normal School of Science. Mr. Acland's appeal, which was in no way exaggerated, received the cordial support of Sir H. Roscoe, who spoke of the condition of the buildings as "really a disgrace." Hon. members, he said, were hoping before long to have a technical Bill ; but what would be the good of it unless proper teachers were provided? And proper teachers it was impossible to obtain unless their schools were what they ought to be. In almost every centre of population in foreign countries these normal schools were to be found, but there was only one in England. This had been built for one purpose, and converted to quite different purposes for which it was unfitted. The honour of the country was at stake, and this state of things had been borne quite long enough. Mr. Plunket, in his reply, declined to give any definite pledge about the matter. He had visited the buildings several times, and as one of the results of the debate of last year, the First Lord of the Treasury, the Chancellor of the Exchequer, the Vice-President of the Council, himself, and others made a most careful visit to every part of the building. One of the conclusions arrtved at was, that before additional buildings were erected it would be a good thing to get rid of a good deal of the material filling up the galleries at the present time. A Committee, consisting, among others, of Sir H. Roscoe, Lord Rayleigh, Sir B. Samuelson, and Lord F. Hervey, had been appointed for the purpose of weeding out those galleries in the science collections alone. Until that Committee had reported, it was impossible to take any further steps or to come to any definite decision with reference to increased expenditure to extend the buildings which at present existed.

A DEPUTATION from the National Association for the Promotion of Technical Education waited on Sir William Hart Dyke on Monday afternoon in the Conference Room at the House of Commons. In answer to the deputation, which was introduced by Lord Hartington, as President of the Association, Sir William Hart Dyke said the Government had the cause of technical education very much at heart, and would do their utmost to pass a Bill dealing with the subject during the present session. They would take into careful consideration the recommendations of the Association. He promised, meanwhile, that he would lay on the table of the House of Commons a memorandum explaining some of the difficult points of the Code in special reference to the instructions to be given to inspectors in carrying out the new provisions of the Code. He also promised that the subjects in which instruction might be given in evening schools should be increased from two to four.

AT the thirtieth session of the Institution of Naval Architects, yesterday, an important paper on the designs for the new battle-ships was read by Mr. W. H. White, F.R.S., Assistant Controller of the Navy and Director of Naval Construction.

THE Zoological Museum at Leyden, one of the most considerable on the Continent, has narrowly escaped a terrible disaster. On Monday, the 1st of this month, a fire broke out, and all the resources of the officials and of the town were taxed to extinguish it. Indeed, it was not got under until a considerable portion of the collection of specimens of hollow-horned Ruminants had been destroyed. Had the accident, which arose from the defect of a flue, taken place at night instead of in the afternoon, when plenty of assistance was promptly at hand, it is believed that the whole Museum would have perished. The authorities of other Museums, especially those which contain many spirit preparations, should not neglect this warning.

WE have already mentioned that an international meeting of zoologists will be held in Paris in August. The President will be M. Milne-Edwards, and some important questions will be submitted for consideration. Among them will be the question of the unification of the language of zoology in classification and specific denotation. M. R. Blanchard has prepared an important report on the subject, which will be published shortly in the *Revue Scientifique*, and form the basis for the discussions at the Congress.

THE Physiological Congress which is to be held in Basle in September will be attended by many French physiologists, if all those who propose to go are able to carry out their intention.

THE King of Sweden has selected Herr Ehrenheim, ex-Minister of State, as President of the forthcoming Oriental Congress in Stockholm. It is announced that Prof. R. L.

Beasley will represent the University of Cambridge; Oxford has not yet chosen its representative. The Shah and several Indian princes will send representatives.

THE Central Society of Agriculture of France has conferred upon Prof. J. C. Ewart the title of honorary member in recognition of the services he has rendered to the fishery industry by his "many and eminent labours."

THE *Kew Bulletin* for April 1888 contained a list of new garden plants described to the end of the year 1887. The *Bulletin* for the present month consists of a list of those described and published during the year 1888. The list has been extended to include the descriptions of new plants (and name alterations) which have appeared in several horticultural periodicals, that were not included in the former list. The number of new garden plants annually described in various English and foreign periodicals renders it a matter of considerable difficulty to botanists and horticulturists to keep them in view. The publication of a complete annual list of new garden plants is, therefore, as the editor explains, indispensable to the maintenance of a correct nomenclature, especially in the smaller botanical establishments in correspondence with Kew, as these, for the most part, are only scantily provided with horticultural periodicals. The editor also points out that such a list will afford information respecting new plants under cultivation at Kew, many of which will be distributed in the regular course of exchange.

A SEVERE shock of earthquake was noticed over the whole of South-East Japan on February 18. At Yokohama and at Tokio many houses were damaged. The shock continued for 6m. 12s., and was felt at Sendai, a town 45 geographical miles to the north of Tokio.

ON March 20, about 10 p.m., a slight shock of earthquake was felt near Carlstad, in Sweden. It was followed by a more severe shock at 3 a.m.

SEVERAL meteors have been observed recently in Scandinavia. On the evening of March 14, a brilliant meteor was seen at Molde, in North-West Norway, bluish-white in colour, and going in an easterly direction; and on March 21, at about 10 p.m., another was seen at Sarpsborg, on the Christiania fjord. It radiated in the west, and went in a southerly direction, displaying, during its passage, rainbow colours, and leaving a reddish trail behind. What may have been the same meteor was seen off the coast of Gothenburg, at 10.22 p.m., a considerable distance further south. It was very brilliant, and bluish-green in colour, and its passage—in a direction south-west-north—occupied fifty seconds.

THE atomic weight of chromium has been redetermined by Mr. Rawson, of University College, Liverpool. Previous determinations, of which there have been many, have resulted in placing the value somewhere between 52·0 and 52·5. The method employed by Mr. Rawson appears to have been an exceptionally accurate one, there being no transference from one vessel to another, no filtrations and consequently no burning of filter papers. The plan of operations consisted in first reducing a known weight of pure ammonium dichromate with alcohol and hydrochloric acid to chromic chloride, and subsequent estimation of the oxide produced by direct precipitation with ammonia. The purest obtainable ammonium dichromate, $(NH_4)_2Cr_2O_7$, was repeatedly recrystallized, dried for a couple of days at 100° C., and finally for a fortnight in a desiccator. The water used in the estimations was trebly distilled, and, on evaporation of 100 cubic centimetres, no residue was obtained. The purest commercial hydrochloric acid was redistilled, and the distillate in like manner gave no residue on evaporation. Similarly, the ammonia solution and the absolute alcohol were redistilled, until absolutely free from impurities. The method of vibrations was employed in weighing, and the platinum dish used in the operations was counterpoised by a similar dish of nearly equal weight, the slight difference being made up by a piece of platinum-foil. The two dishes were always treated alike: when one was placed on the water-bath, the other was also placed on a water-bath, and for the same time; they were both ignited for the same length of time, and, after ignition, were simultaneously placed in desiccators. In this way the usual errors in weighing platinum after such treatment were eliminated. During the experiments, the dishes were protected by covers of platinum-foil, which were not, however, weighed with them. In the actual experiments, the finely ground ammonium dichromate was weighed in one of the dishes, 10 c.c. of water added, and when the salt had dissolved 10 c.c. of hydrochloric acid. In small quantities at a time, 10 c.c. of the alcohol were subsequently added, and the whole evaporated to complete dryness on the water-bath. After repetition of this treatment to insure complete reduction, the residue was dissolved in 10 c.c. of water and 2 c.c. of the ammonia added; after an interval another 10 c.c. of water and 3 c.c. of ammonia were added, and the whole evaporated again to complete dryness. The dish was then heated in an air-bath to 140° for five hours, and afterwards to redness for an hour in a muffle furnace. The residual oxide, after weighing till constant, was found to be perfectly pure, and of a fine green colour; on washing with water and evaporating the washings, no residue was obtained. In calculating the results, to which all the known corrections were applied, it was assumed that $O = 15·96$ and $N = 14·02$, both well-determined numbers. The mean of the values from six experiments, the maximum difference between which was only 0·120, gives for the atomic weight of chromium 52·061. Hence chromium appears likely to possess a whole-number atomic weight, and it cannot but be admitted as remarkable that so many of the later stœchiometrical investigations, conducted with all the modern experimental refinements, have yielded values approximating to true multiples of the atomic weight of hydrogen.

MR. W. E. BEALE writes to the *Times* from Folkington Manor, Polegate, Sussex, April 4:—"On this estate is to be seen a nest, which has evidently been built partly by a thrush and partly by a hedge-sparrow. The nest itself is of the ordinary size of the thrush's nest; but, instead of being lined with mud, it is lined with horsehair, wool, and moss. The birds seem to have been good friends during the laying of their eggs. On Monday last there were three sparrow's eggs in the nest, and five thrush's. But on visiting the nest to-day it was found that the sparrow's eggs had been destroyed. The birds appear to have quarrelled when it came to the question of which should sit on them, and the thrush asserted its rights, not, however, without a struggle on the part of the sparrow, one of the thrush's eggs being broken, one missing, and three being perfect."

ACCORDING to the *American Field*, wild boars have become very numerous in the deep recesses of the Shawangunk Mountains, that border Orange and Sullivan Counties, N.Y. They are the genuine Black Forest wild boars of Europe, the descendants of nine formidable and ferocious boars and sows which Mr. Otto Plock, of New York, imported some few years ago for the purpose of annihilating the snakes and vermin that infested his estate near the Shawangunk Mountains. After the boars had eaten up all the snakes and vermin in the inclosure, they longed for more, and dug under the wire fencing and escaped to the mountains, where they have since bred and multiplied. They are so ferocious that the most daring hunter is said to hesitate before attacking them. They have immense heads, huge tusks and shoulders, and lank hind-parts.

MR. T. WORKMAN writes to us from Belfast that, having fallen into a doze on the afternoon of Friday, March 29, he was awakened by the undoubted hum of a mosquito, and thought himself back in Singapore, where he was about fourteen months ago. His first impulse was to drive away the nuisance, but curiosity to know whether it really was what he thought made him forbear, and he was soon rewarded by its settling on his right eyebrow and inserting its stiletto, with the usual sharp result, both to him and to it. Mr. Workman incloses in his letter a sketch of the insect. A mosquito in March in the north-east of Ireland is certainly a rare phenomenon.

THE first part of the Transactions of the meeting held in August 1888, in Paris, for the study of tuberculosis in man and animals, has just been published by M. Masson. It is a volume of 500 pages, and contains much interesting matter.

MESSRS. MACMILLAN AND CO. have issued the second part of vol. ii. of the new and thoroughly revised edition of "A Treatise on Chemistry," by Sir H. E. Roscoe, F.R.S., and C. Schorlemmer, F.R.S. In this volume, the authors treat of metals and their compounds.

A VALUABLE list of the Coleopterous fauna of the Liverpool district, by Mr. John W. Ellis, has been reprinted from the Proceedings of the Liverpool Biological Society. The list contains nearly 30 per cent. of the British beetles.

THE second part of Prof. E. Strasburger's "Histologische Beiträge" (Jena, G. Fischer) has been published. In this part, which is illustrated with four lithographic plates, the author deals with the growth of vegetable cellular membranes.

MESSRS. G. BELL AND SONS are about to publish "Names and Synonyms of British Plants," by the Rev. G. Egerton-Warburton. This is a complete alphabetical list of known British plants, giving, under each, references to its description in Sowerby's "English Botany" (Syme Boswell), "The London Catalogue of Plants," and the "Floras" of Babington, Bentham, and Hooker. The correct pronunciation of the names is indicated by accents. A list of the most usual synonyms is appended.

WE have received vol. ii., No. 2, of the Proceedings of the Tokio Physical Society. It is worthy of note that the report of the Society is printed in Japanese, in Roman letters, while the various papers are in English. Amongst the contributions in the present number are: effects of stress on magnetization of nickel, by H. Nagaoka; thermal conductivity of marble, by K. Yamagawa; an apparatus for purifying mercury, by H. Nagaoka.

THE next Congress and Exhibition of the Sanitary Institute will be held in Worcester at the end of September. Arrangements are in progress, and will be published shortly.

AT the Central Institution of the City and Guilds of London Institute, Mr. T. Bolas will deliver a course of six lectures on photography, on Wednesday evenings, at 7.30, beginning on May 8. Lectures I. and II. will deal with the use of artificial light in photography; lectures III. and IV. with photo-mechanical printing methods; and lectures V. and VI. with direct contact printing methods.

THE London Geological Field Class under the direction of Prof. H. G. Seeley, F.R.S., will begin the summer excursions this year on May 4, and will continue them on Saturday afternoons thereafter till the end of June. Intending students should apply at once for tickets to the Honorary Secretary, Mr. Walter Lewinton, Lundy House, Willoughby Road, Hampstead, N.W.

THE additions to the Zoological Society's Gardens during the past week include a Macaque Monkey (*Macacus cynomolgus* ♀) from India, presented by Mrs. Cox; a Sinaitic Ibex (*Capra sinaitica*) from Mount Sinai, presented by Sir James Anderson; four Black Swans (*Cygnus atratus*) from Australia, presented by Messrs. James and Alex. Brown; a Raven (*Corvus corax*), British, presented by Mr. G. F. Hastings; a Collared Fruit Bat (*Cynonycteris collaris*), a Side-striped Jackal (*Canis lateralis*), born in the Gardens.

OUR ASTRONOMICAL COLUMN.

THE LUMINOSITY OF VENUS.—Venus being now favourably situated, it is a convenient time for making observations with reference to the question of the cause of the recorded so-called phosphorescence. If there be any extensive phosphorescence, as first suggested by Sir William Herschel, or if there be an atmosphere occasionally illuminated by electrical discharges similar to those which produce auroræ in our own atmosphere, or even if there be a meteoritic bombardment, the light observed may possibly give indications of a spectrum of bright lines or bands.

THE SPECTRA OF R LEONIS AND R HYDRÆ.—A *Wolsingham Observatory Circular* (No. 23, April 2, 1889), by Mr. Espin, states that: "The spectra of R Leonis and R Hydræ contain bright (hydrogen?) lines, first seen on February 25. Observations confirmed, through the kindness of Mr. Common, by Mr. Taylor, at Ealing, who sees two in R Leonis and one in R Hydræ." The spectra of these two important variables have hitherto been simply described as being of Group II (Lockyer), indicating, according to Mr. Lockyer, carbon-fluting radiation and metallic-fluting absorption. Mr. Espin's observations are of very great interest in connection with the meteoric theory as to the cause of variability in this class of stars. It will be remembered that the variability is ascribed to the effects of a cometic swarm revolving round a central one, the maximum occurring at periastron passage, when the revolving swarm passes through the outliers of the central one. It was predicted that, under these conditions, bright lines would make their appearance, and the prediction has now been verified in the most complete manner. Both the stars observed by Mr. Espin were near their maxima, that of R Leonis occurring on March 23, and that of R Hydræ on February 17 (*Ann. du Bur. des Long.*, 1889). It may also be remembered that bright lines have been seen in R Cygni and *o* Ceti when near their maxima. The meteoric theory is therefore greatly strengthened by these observations. The importance of making further observations of these stars, with special reference to the disappearance of the bright lines, is obvious.

THE SUN-SPOT MINIMUM.—Prof. Tacchini has recently communicated to the *Lyncei* of Rome (vol. v. series 4*a*, March 3, 1889), a note by Prof. Riccò on the days on which the solar surface was entirely free from spots, during the years 1885-6-7-8. It appears from the tables given that in 1885 there were only six days on which no spots were visible, whilst there were fifty-one in 1886, ninety-eight in 1887, and 140 in 1888. The maximum number of blank days occurring in one month was in November 1886, there being no spots on twenty-six days of that month. There were twenty blank days in October 1886, eighteen in July, and sixteen in May of the same year. A second table is given, showing the total numbers of days on which no spots were visible during the years 1872-88 inclusive, and also the greatest number of consecutive days on which there were no spots during the same years. From this it appears that the greatest number of blank days was 248 in 1878, the last minimum period, whilst in 1872, 1882, and 1884, spots were visible every day. It is suggested that the approaching minimum will occur in 1889-90. In 1879 there were thirty-nine consecutive days on which no spots were recorded, this being the maximum number in any one year; the greatest number since then was seventeen in 1888.

DISCOVERY OF A NEW COMET.—A faint comet was discovered by Mr. E. E. Barnard, Lick Observatory, on March 31. The position of the object was as follows:—

March 31, 17h. 19m. G.M.T., R.A. 5h. 20m. 50s.; N.P.D. 73° 53′ 0″.

It has since been observed at Copenhagen:—

April 4, 8h. 51m. G.M.T.; R.A = 5h. 17m. 56s.; N.P.D. = 74° 0′ 55″.